Kubernetes Interview Questions

COMMON :

1. What is Kubernetes, and why is it important in the world of container orchestration?
2. Explain the key components of Kubernetes and their roles in container management.
3. How do you deploy a containerized application on a Kubernetes cluster? Walk me through the process.
4. Describe Kubernetes Deployments and StatefulSets. What are the differences, and when would you use one over the other?
5. How does Kubernetes handle load balancing for containerized applications?
6. What is a Kubernetes Namespace, and why would you use multiple namespaces in a cluster?
7. Explain the concept of Kubernetes Services and how they enable network connectivity for Pods.
8. What is the role of a Kubernetes Ingress controller, and how does it work?
9. What is Kubernetes' role in auto-scaling, and how can you set up Horizontal Pod Autoscaling (HPA)?
10. Describe Kubernetes rolling updates and canary deployments. When and why would you use each approach?
11. Explain Kubernetes' role in self-healing and how it handles container failures.
12. What are Kubernetes ConfigMaps and Secrets, and how do they differ in terms of storing configuration data?
13. How would you upgrade a Kubernetes cluster to a new version while minimizing downtime?
14. What is a Helm chart, and how does it simplify application deployment on Kubernetes?
15. How do you monitor a Kubernetes cluster and its workloads? Mention some popular monitoring and logging solutions for Kubernetes.
16. Explain Kubernetes RBAC (Role-Based Access Control) and how you would configure it to secure your cluster.
17. Describe the concept of "Immutable Infrastructure" and how it relates to Kubernetes.
18. How do you handle secrets rotation for applications running in Kubernetes, and why is it important?
19. Discuss the challenges and best practices for running stateful applications in Kubernetes, such as databases.
20. Share an example of a complex Kubernetes project you've worked on, highlighting the challenges you faced and how you overcame them.

SCENARIO:

1. You are responsible for deploying a microservices-based application on Kubernetes. How would you design the architecture to ensure high availability, scalability, and fault tolerance for the application?
2. Your team has developed a new version of an application that you need to roll out to a Kubernetes cluster without affecting the existing users. Describe the strategy and steps you would take to perform a zero-downtime deployment
3. You have a stateful application, such as a database, running in Kubernetes. Explain how you would ensure data persistence and manage backups effectively.
4. Your organization uses multiple Kubernetes clusters across different cloud providers and on-premises data centers. How would you implement a multi-cluster strategy to manage and orchestrate containers seamlessly across all clusters?
5. One of your Pods is experiencing high resource utilization and affecting other Pods on the same node. How would you diagnose and address this issue, ensuring resource isolation?
6. You want to enable secure communication between services in your Kubernetes cluster. Describe how you would configure and manage network policies for pod-to-pod communication.
7. You have a stateless application with variable traffic patterns. How would you configure Horizontal Pod Autoscaling (HPA) to automatically scale the application based on resource utilization?
8. Your organization is adopting GitOps for managing Kubernetes configurations. Describe the GitOps workflow and the tools you would use to implement it.
9. You need to migrate an existing monolithic application to a microservices architecture running on Kubernetes. How would you plan and execute this migration while minimizing disruptions?
10. Your Kubernetes cluster is running out of resources, and you need to optimize resource utilization. Explain the steps you would take to right-size and optimize resource allocation for your workloads.
11. You are tasked with setting up a disaster recovery plan for your Kubernetes cluster. Describe the strategies and tools you would use to ensure data and application availability in the event of a cluster failure.
12. You want to implement RBAC (Role-Based Access Control) in your Kubernetes cluster. Explain how you would define roles, role bindings, and service accounts to secure your cluster.
13. Your team is adopting a hybrid cloud strategy, using both on-premises and cloud-based Kubernetes clusters. How would you ensure consistency and compatibility between these clusters?
14. You are troubleshooting a performance issue in a Kubernetes cluster. Walk me through the steps you would take to identify the root cause and optimize the cluster's performance.

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